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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/382,834	08/25/1999	BRIAN SAMUEL BEAMAN	YO993-028BX	5735
7590 10/20/2004			EXAMINER	
DANIEL E MORRIS INTELLECTUAL PROPERTY LAW DEPT IBM COPORATION P O BOX 218 YORKTOWN HEIGHTS, NY 10598			NGUYEN, VINH P	
			ART UNIT	PAPER NUMBER
			2829	
			DATE MAILED: 10/20/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/382,834

Applicant(s)

BEAMAN ET AL.

Examiner

VINH P NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2004.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 29-90 is/are pending in the application.
- 4a) Of the above claim(s) 49, 60-77 and 83-87 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-48, 50-59, 78-82, 88-90 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

1. According to the file record, there is no evidence showing that the instant application is a CIP of Application Serial No. 09/963,346, now Pat No. 5,371,654.
2. Claims 49,60-77,83-87 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention of group II, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 07/03/04.
3. Claims 81 and 90 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

It appears that the original specification does not have support for the limitations of flexible conductor would include all materials of gold, gold alloy, copper, copper alloy, aluminium, nickel, palladium and platinum as recited in claims 81 and 90. Therefore, these limitations are considered as new matter.

4. Claims 50,52,78,81,83 and 90 are objected to because of the following matters:

In claim 50, it is unclear what "plurality of groups of said plurality of flexible electrical contact elements" are. Are they the same as "flexible contact elements"?

In claim 52, it is unclear what "a plurality of second substrates" are.

In claim 78, it is unclear what "terminals on an other of the two opposite surfaces",

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"contacts" and "means, within each of the first substrates, for connecting the terminals to the contacts" represent. Are they shown in any of drawing?

In claim 81 and 90, it is unclear whether flexible conductor would include all materials of gold, gold alloy, copper, copper alloy, aluminium, nickel, palladium and platinum.

In claim 83, it is unclear what "a plurality of first substrates" represent. Furthermore, it is unclear whether a plurality of substrates or a first substrate has been claimed.

Appropriate correction is required.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 29-46, 48, 50-59, 76-80, 82 and 88-89 are rejected under 35 U.S.C. 102(b) as being anticipated by Beaman et al (Pat # 5,635,846).

As to claims 29-30, 37, 41, 45, 46, 51, Beaman et al disclose in figure 2 an apparatus having a first substrate (68) corresponding to an area of the electronic device/wafer (50) to be probed, a second substrate (54), mounted and connected to the front surface (bottom surface) of the first substrate (68) and having a plurality of flexible contact elements (42) for making contact with a surface of the electronic device (50). According to Beaman et al, both the first substrate

(68) and the second substrate (54) are brought into contact with the electronic device (50) then the flexible contact (42) would be inherently flexed and wiped the surface of the device (50) and the contact elements substantially compliantly response when they are withdrawn from contacting the device (50).

As to claim 31, it appears that the contacts (42) making contact with a plurality of dice all at once.

As to claim 32, it appears that the area of the electronic device (50) is a portion of a surface area of the device (50).

As to claim 33, the type of the device under test such as "printed circuit board" is not given patentable weight, therefore, it appears that the device of Beaman et al meet the limitation of this instant claim.

As to claim 34, Beaman et al teach that it would have been well known to use their apparatus to test a packaging substrate (114) (Integrated circuit) as shown in figure 6.

As to claim 35, the flexible elements (42) are probe elements.

As to claims 36, 48, the flexible elements (42) include protuberances (104) as shown in figures 5-6.

As to claims 38, 44, it appears that there are electrical connections (66,64) between the second and first substrates.

As to claim 39, it appears that the first substrate (68) is "a space transformer".

As to claims 40, it is noted that the electronic device (50) is a wafer and the flexible contact elements of the second substrate make contact with individual semiconductor dies on the wafer.

As to claim 42, Beaman et al teach that a socket (66) is connected between the first substrate (68) and second substrate (54) as shown in figure 2.

As to claims 43, it appears that the apparatus of Beaman et al as shown in figure 2 is connected to an electrical testing apparatus through cables (72).

As to claim 50, it appears that Beaman et al has a plurality of groups of plurality of flexible contact elements (42).

As to claims 53-59, according to Beaman et al, both the first substrate (68) and the second substrate (54) are brought into contact with the electronic device (50) then the flexible contact (42) would be flex and wipe the surface of the device (50) and the contact elements substantially compliantly response when they are withdrawn from contacting the device (50).

As to claims 79-80 and 88-89, Beaman et al teach that it would have been well known that the wires are coated with Au,Cr,Co,Ni and Pd (see column 5, line 65-67 and column 6, lines1-3).

7. Claims 29-32,34-46,48,50-59,78,82 are rejected under 35 U.S.C. 102(b) as being anticipated by Khandros et al (Pat # 5,806,181).

As to claims 29-30,37,41,45,46,51,78, 83, Khandros et al disclose in figure 5 an apparatus having a first substrate (504) corresponding to an area of the electronic device/wafer (508) to be probed, a second substrate (506) with contacts (520), mounted and connected to the front surface of the first substrate (504) with terminals (516,514) and having a plurality of flexible contact elements (524) for making contact with a surface of the electronic device (508). According to Khandros et al, both the first substrate (504) and the second substrate (506) are brought into contact with the electronic device (508) then the flexible contact (524) would be inherently flexed and wiped the surface of the device (508) and the contact elements substantially compliantly response when they are withdrawn from contacting the device (50). Furthermore, it appears that the first substrate (504) inherently has means for connecting the terminals (514,516) to the contacts (510) of the probe card (502).

As to claim 31, it appears that the contacts (42) making contact with a wafer under test (508) with plurality of dice at once.

As to claim 32, it appears that the area of the electronic device (508) is a portion of a surface area of the device (508).

As to claims 33-34, Khandros et al teach that it would have been well known to use their apparatus to test a packaging substrate such as a printed circuit board (see column 9, lines 45-50)

As to claim 35, the flexible elements (524) are probe elements.

As to claim 36, the flexible elements include protuberances (1210) as shown in figures 12a-12b.

As to claims 38, 44, it appears that there are electrical connections (520,526) between the second and first substrates.

As to claim 39, it appears that the first substrate (504) is "a space transformer".

As to claims 40, it is noted that the electronic device (508) is a wafer and the flexible contact elements (524) of the second substrate make contact with individual semiconductor dies on the wafer.

As to claims 43, it appears that the apparatus of Khandros et al connected to an electrical testing apparatus through the probe card (502) so that the test is performed.

As to claim 50, it appears that Khandros has a plurality of groups of plurality of flexible contact elements (524).

As to claims 53-59, 82, according to Khandros et al, both the first substrate (504) and the second substrate (506) are brought into contact with the electronic device (508) then the flexible contact (524) would be flex and wipe the surface of the device (508) and the contact elements substantially compliantly response when they are withdrawn from contacting the device (508).



8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 47-48, 79-80 and 88-89 rejected under 35 U.S.C. 103(a) as being unpatentable over Khandros et al. (Pat # 5,806,181) in view of Beaman et al (Pat # 5,635,846).

As to claims 47-48, Khandros et al disclose an apparatus as recited in paragraph #7. Khandros et al do not mention about having an protuberance at each end of each of the flexible conductor/contact members (524). However, Beaman et al teach that it would have been well known to have a protuberance at each end of each of the flexible conductor. It would have been obvious for one of ordinary skill in the art to provide a protuberance at each end of each of the flexible conductor as taught by Beaman et al to the flexible conductor members of Khandros et al so that when the flexible conductor making contact with the test point of the device under test, there will be less pressure to be applied to the test point, as a result, the damage to the test point is avoided.

As to claims 79-80 and 88-89, Khandros et al disclose an apparatus as recited in paragraph #7. Khandros et al do not mention about the coating for the wires such as Au, Cr, Co, Ni and Pd. However, Beaman et al teach that it would have been well known that the wires are coated with Au, Cr, Co, Ni and Pd (see column 5, line 65-67 and column 6, lines 1-3). Therefore, it

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would have been well known for one of ordinary skill in the art to coat the wires of Khandros et al with Au,Cr,Co,Ni and Pd as taught by Beaman et al so that the wires would have better conduction during test.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VINH P NGUYEN whose telephone number is (571)-272-1964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



VINH P. NGUYEN  
PRIMARY EXAMINER  
ART UNIT 2829

10/12/04